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A61M

(54) Liquid dispenser having an absorbent applicator tip

(57) A dispensing apparatus, e.g. for medicines or cosmetics, comprises a generally tubular container (11) which has a body portion (14) and a substantially more narrow tip portion (15). The container is adapted to be filled with liquid (13). The tip portion is easily rupturable from the container body portion to allow the egress of liquid from the container. The apparatus also includes an absorbent swab member (12) covering the tip portion of the container and the adjacent body portion so as to be adapted to receive liquid from the container body when the tip portion is ruptured.

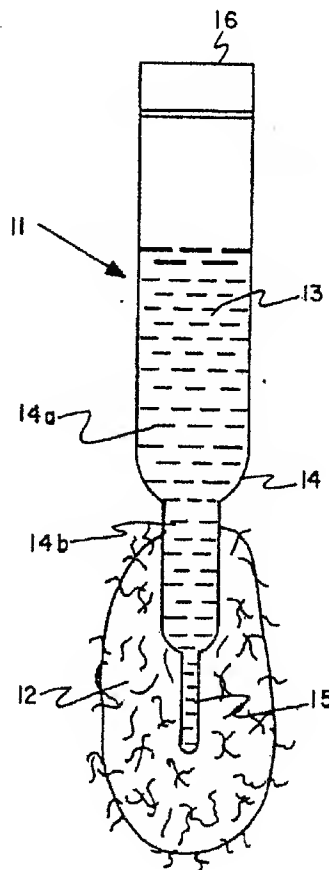
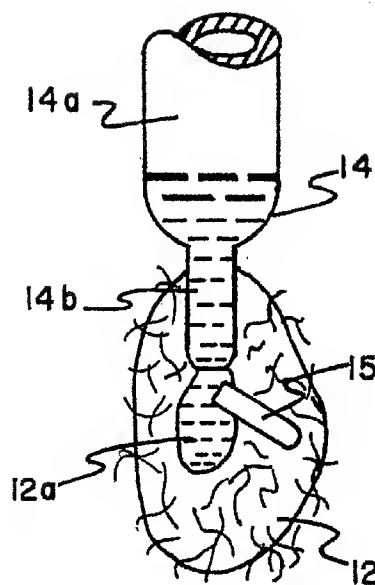
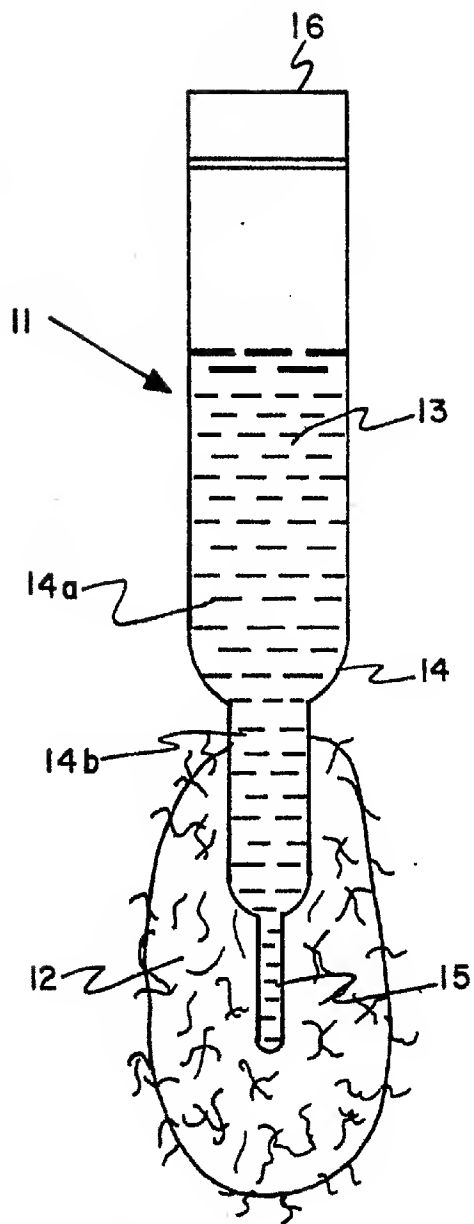


FIG. 1

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SPECIFICATION

Liquid dispenser having an absorbent applicator tip

This invention relates to a liquid dispenser having an absorbent applicator tip, e.g. a cotton swab tip. Such a container may be used for dispensing various liquid materials, e.g. medicines or cosmetics. As used herein, the term "liquid" refers to various liquid materials capable of flow from such a dispensing device including those having a lotion-like consistency.

Various devices have been proposed for dispensing liquid from a rupturable container to an absorbent applicator tip, e.g. a cotton swab tip.

For example, in U.S. Patent No. 3,519,364 a tubular container is described and shown in Fig. 6 which uses an intermediate sealing plug to contain liquid at the lower end of a tubular container having an enlarged cross-sectional bore at its tip which is encased in a wad of batt or other fibrous material. The thickness of the wall section of the tubular container is thinner in the enlarged cross-sectional bore portion as compared to the thickness of the wall at other portions of the tubular container. This thinner cross-section in the tip portion of the container allows for its ready fracturing when pressed against a hard unyielding surface. The fluid is then free to flow from the container into the fibrous material surrounding the ruptured tip.

U.S. Patent No. 4,430,013 uses a different approach in order to form a disposable swab article. Figs. 10 and 11 thereof illustrate a container encased in a foam applicator tip. The container is formed on one side from flat sheet stock having a domed receptacle on one surface. A cut or scored line is formed in the flat sheet stock to allow for rupture of the receptacle by bending of the flat sheet stock back onto itself as illustrated in Fig. 11. A somewhat similar approach is used in U.K. Patent No.

4,218,155 which in Fig. 3 illustrates a receptacle having a flat lower face joined to an upper face of trough shape. A rupture initiation line is provided at the outlet end of the thus-formed stick-like receptacles preferably on each of the faces of the article. U.S. Patent No. 3,757,782 illustrates the encasing of a tube member at either end in cotton or equivalent swab members. Either end of the tube contains a rupturable disc or membrane which is readily rupturable under internal liquid pressure formed if the tube member is pressed.

U.S. Patent No. 3,958,571 describes a swab applicator comprising an elongated hollow tube which is open at one end and normally closed at the opposite end and which contains a solution which is adapted to be dispensed from the tube. A swab of absorbent material is secured around the open end, and the opposite end is provided with means to open the end to permit the solution to flow by gravity into the swab.

The present invention relates to a dispensing apparatus which comprises a generally tubular container body portion which is adapted to hold a liquid to be dispensed from the container, the container body portion terminating in a tip portion having a more narrow cross-sectional area than the

cross-sectional area of the container body portion. The tip portion is adapted to be ruptured from the container body portion to allow egress of liquid from the container. An absorbent swab member covers the top portion of the container and the adjacent container body portion so as to be adapted to receive liquid from the container body when the tip portion is ruptured. The present dispensing apparatus differs from the applicator disclosed in U.S. Patent No. 3,519,364 since the container held in the absorbent swab has a tip of more narrow cross-sectional area than the main portion of the container, but of substantially the same thickness rather than being of greater cross-sectional area with a thinned wall. The present dispensing apparatus is also unlike the disposable swab article disclosed in U.S. Patent No. 4,430,013 since the entire container is of generally tubular shape rather than having a component formed of flat sheet material. Also, no score line is needed at the junction point of the tip and container body of the present dispenser such as is required in the article of the latter disclosure.

Referring to the accompanying illustrative drawings:

Fig. 1 is a side view showing the dispensing apparatus in accordance with the present invention prior to breaking of the tip portion from the container body; and

Fig. 2 is a fragmentary side view showing the present dispensing apparatus after the tip portion has been broken from the container body and liquid has been allowed to become absorbed by the swab material.

In general terms, the present dispensing apparatus illustrated in Fig. 1 comprises a generally tubular container 11 and an absorbent swab material 12 over the tip of the container. The container 11 is adapted to hold liquid 13 which is intended to be dispensed from the container into the swab material as will be described in greater detail below. Various types of liquid may be held in container 11. For example, cosmetics and medicines are intended to be within the scope of the present invention.

The container 11 contains a container body portion 14 in which the bulk of the liquid is held. The container body 14 is appropriately sealed at one end 16. Its other end communicates with a substantially narrower tip portion 15. This tip portion may be easily ruptured by pressing of that end of the article against a relatively hard, unyielding surface.

Fig. 2 illustrates the configuration of the dispensing apparatus according to the present invention after the tip 15 has been broken from container body 14 and a portion of liquid 12a has been allowed to enter the interior of absorbent swab 12. In a preferred embodiment, the container body 14 is divided into a large container body reservoir 14a which terminates in a narrower capillary section 14b. The capillary section 14b is of greater cross-sectional area than the tip portion 15, but is narrow enough to allow for retention of liquid 13 within it by means of capillary action. If the container 14 is formed of a plastic material which is somewhat

deformable, squeezing of the container body reservoir portion 14a will dispense liquid 12a from the capillary portion 14b in a drop by drop fashion assuming appropriate dimensioning of the diameter of portion 14b (e.g., a diameter of about 0.25 cm) taking into account the characteristics of the liquid to be held therein. In this manner the liquid may be dispensed into the swab gradually to prevent its over-saturation.

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CLAIMS

1. A liquid dispensing apparatus which comprises:

- 15 (a) a generally tubular container body portion adapted to hold a liquid to be dispensed from the container, the container body portion terminating in a tip portion having a more narrow cross-sectional area than the cross-sectional area of the container body portion and being adapted to be ruptured from
20 the container body portion to allow egress of liquid

from the container; and

- (b) an absorbent swab member covering the tip portion of the container and the adjacent container body portion so as being adapted to receive liquid from the container body when the tip portion is ruptured.

2. An apparatus as claimed in claim 1 wherein the container body (a) consists of a reservoir which terminates in a more narrow capillary section which in turn terminates in a more narrow capillary section which in turn terminates in a still more narrow tip portion.

3. An apparatus as claimed in claim 1 or claim 2 wherein the swab member is formed of cotton.

35 4. An apparatus as claimed in any of claims 1 to 3 wherein portion (A) is formed of plastic.

5. An apparatus as claimed in claim 1 substantially as herein described with particular reference to the accompanying illustrative drawings.